Plant Science, 71 (1990) 281—284
Elsevier Scientific Publishers Ireland Ltd.

Subject Index

Volume 71 (1990)

Abscission, red (far-red) light, soluble sugars, starch, *Vigna radiata*, 167
Alfalfa, artificial seeds, desiccation tolerance, somatic embryogenesis, maltose, ammonium, 261
Amino acid sequence, barley leaves, chitin binding proteins, endochitinase, chitinase induction, *Erysiphe graminis* f.sp. *hordei*, 55
Ammonium, artificial seeds, desiccation tolerance, somatic embryogenesis, alfalfa, maltose, 261
Angiosperms, mitochondria, mitochondrial genome, 3
Anthocyanins, carrot suspension cultures, sinapoyl glucose synthesis, sinapic acid, uridine diphosphoglucose, 179
Anthocyanin synthesis, gibberellin, barley isogenic lines, dwarf plant development, photoinsensitivity, *Hordeum vulgare*, 35
Arachis hypogaea (lectin), ELISA, lectin distribution, 129
Artificial seeds, desiccation tolerance, somatic embryogenesis, alfalfa, maltose, ammonium, 261
Asteraceae, globe artichoke, organogenesis, inflorescences, plant regeneration, tissue culture, 233
ATPase, pyrophosphatase, marker enzymes, tonoplast, root, *Zea mays* L., 199
Auxin, *Petunia hybrida*, cytokinin, callus culture, protoplast, shoot and root regeneration, 239
dl-7-Azatryptophan, glutamine, glutamine synthetase inhibitors, *Micrasterias*, nitrogen depletion, zygote formation, 21

Bacterial canker, *Lycopersicon peruvianum*, phytotoxin, extracellular polysaccharides, protoplasts, sucrose uptake, 105
Barley isogenic lines, anthocyanin synthesis, gibberellin, dwarf plant development, photoinsensitivity, *Hordeum vulgare*, 35
Barley leaves, amino acid sequence, chitin binding proteins, endochitinase, chitinase induction, *Erysiphe graminis* f.sp. *hordei*, 55
Barnyard grass, $NADP^+$-malate dehydrogenase, purification, *Echinochloa crus-galli*, populations, isozymes, electrophoresis, 173
Bradyrhizobium, feedback regulation, shoot-root interaction, *Glycine max*, non-nodulating soybean mutants, symbiosis, 69
Brassica napus L., extensin gene, gene expression, gene sequence, 223

Calcium, protein kinase, fatty acids, sphingosine, 45
Callus culture, *Petunia hybrida*, auxin, cytokinin, protoplast, shoot and root regeneration, 239
Callus determination, competence, shoot induction, regeneration efficiency, hedging effects, 83
Carbohydrate cross-links, cell wall, cell cycle, *Chlamydomonas reinhardii*, hydroxyproline-rich glycoproteins, deglycosylation, 119
Carrot suspension cultures, sinapoyl glucose synthesis, sinapic acid, uridine diphosphoglucose, anthocyanins, 179
Cell cycle, cell wall, *Chlamydomonas reinhardii*, hydroxyproline-rich glycoproteins, deglycosylation, carbohydrate cross-links, 119
Cell suspension, paraffinic hydrocarbon, *Euphorbia characias*, heterotrophy, photomixotrophy, photoautotrophy, 93
Cell suspensions, choline, chromosome numbers, *Nicotiana tabacum*, osmolarity, 251
Cell wall, cell cycle, *Chlamydomonas reinhardii*, hydroxyproline-rich glycoproteins, deglycosylation, carbohydrate cross-links, 119
Chilling injury, oil palm, *Elaeis guineensis*, somatic embryos, ethylene, ethylene-forming enzyme, 29
Chitinase, wheat, plant-pathogen interactions, 185
Chitinase induction, amino acid sequence, barley leaves, chitin binding proteins, endochitinase, *Erysiphe graminis* f.sp. *hordei*, 55
Chitin binding proteins, amino acid sequence, barley leaves, endochitinase, chitinase induction, *Erysiphe graminis* f.sp. *hordei*, 55
Chlamydomonas reinhardii, cell wall, cell cycle, hydroxyproline-rich glycoproteins, deglycosylation, carbohydrate cross-links, 119
Chlorophyll, *Vigna radiata*, mycorrhiza, phosphorus, phosphatases, peroxidase, 209
Chlorophyllides, chlorophyll biosynthesis, chlorophyll catabolism, *Melia azedarach*, *Pisum sativum*, *Citrus sinensis*, 147
Chlorophyll accumulation, *Pinus nigra*, zeatin, zeatin riboside, isopentenyl adenine, isopentenyl adenosine, 153
Chlorophyll biosynthesis, chlorophyllides, chlorophyll catabolism, *Melia azedarach*, *Pisum sativum*, *Citrus sinensis*, 147
Chlorophyll catabolism, chlorophyllides, chlorophyll biosynthesis, *Melia azedarach*, *Pisum sativum*, *Citrus sinensis*, 147
Chloroplast translation, thylakoid-bound ribosomes, translation regulation, membrane biogenesis, 137
Choline, cell suspensions, chromosome numbers, *Nicotiana tabacum*, osmolarity, 251

Chromosome numbers, cell suspensions, choline, *Nicotiana tabacum*, osmolarity, 251
Citrus sinensis, chlorophyllides, chlorophyll biosynthesis, chlorophyll catabolism, *Melia azedarach*, *Pisum sativum*, 147
Competence, shoot induction, callus determination, regeneration efficiency, hedging effects, 83
Cytokinin, *Petunia hybrida*, auxin, callus culture, protoplast, shoot and root regeneration, 239

Deglycosylation, cell wall, cell cycle, *Chlamydomonas reinhardii*, hydroxyproline-rich glycoproteins, carbohydrate cross-links, 119
Desiccation tolerance, artificial seeds, somatic embryogenesis, alfalfa, maltose, ammonium, 261
2,4-Diaminobutyric acid, tissue culture, hypocotyl tissue, *Lathyrus sylvestris*, flatpea, Lathco, 99
Dwarf plant development, anthocyanin synthesis, gibberellin, barley isogenic lines, photoinsensitivity, *Hordeum vulgare*, 35

Echinochloa crus-galli, NADP⁺-malate dehydrogenase, purification, barnyard grass, populations, isozymes, electrophoresis, 173
Elaeis guineensis, oil palm, somatic embryos, chilling injury, ethylene, ethylene-forming enzyme, 29
Electrophoresis, NADP⁺-malate dehydrogenase, purification, *Echinochloa crus-galli*, barnyard grass, populations, isozymes, 173
ELISA, *Arachis hypogaea* (lectin), lectin distribution, 129
Endochitinase, amino acid sequence, barley leaves, chitin binding proteins, chitinase induction, *Erysiphe graminis* f.sp. *hordei*, 55
Enzyme, potato, semialdehyde dehydrogenase, kinetics, mechanism, 159
Erysiphe graminis f.sp. *hordei* , amino acid sequence, barley leaves, chitin binding proteins, endochitinase, chitinase induction, 55
Ethylene, oil palm, *Elaeis guineensis*, somatic embryos, chilling injury, ethylene-forming enzyme, 29
Ethylene-forming enzyme, oil palm, *Elaeis guineensis*, somatic embryos, chilling injury, ethylene, 29
Euphorbia characias, paraffinic hydrocarbon, cell suspension, heterotrophy, photomixotrophy, photoautotrophy, 93
Extensin gene, *Brassica napus* L., gene expression, gene sequence, 223
Extracellular polysaccharides, *Lycopersicon peruvianum*, bacterial canker, phytotoxin, protoplasts, sucrose uptake, 105

Fatty acids, calcium, protein kinase, sphingosine, 45
Feedback regulation, shoot-root interaction, *Glycine max*, *Bradyrhizobium*, non-nodulating soybean mutants, symbiosis, 69
Flatpea, tissue culture, 2,4-diaminobutyric acid, hypocotyl tissue, *Lathyrus sylvestris*, Lathco, 99
Fosetyl-Al, host-parasite interface, *Phytophthora infestans*, tomato leaf cell, ultrastructure, 267

GA_3, sorghum culture, inflorescence, phyllody, smut infection, 113
Gene expression, extensin gene, *Brassica napus* L., gene sequence, 223
Gene sequence, extensin gene, *Brassica napus* L., gene expression, 223
Gibberellin, anthocyanin synthesis, barley isogenic lines, dwarf plant development, photoinsensitivity, *Hordeum vulgare*, 35
Globe artichoke, organogenesis, inflorescences, plant regeneration, asteraceae, tissue culture, 233
Glutamine, *dl*-7-azatryptophan, glutamine synthetase inhibitors, *Micrasterias*, nitrogen depletion, zygote formation, 21
Glutamine synthetase inhibitors, *dl*-7-azatryptophan, glutamine, *Micrasterias*, nitrogen depletion, zygote formation, 21
Glycine max, feedback regulation, shoot-root interaction, *Bradyrhizobium*, non-nodulating soybean mutants, symbiosis, 69

Hedging effects, competence, shoot induction, callus determination, regeneration efficiency, 83
Heterotrophy, paraffinic hydrocarbon, cell suspension, *Euphorbia characias*, photomixotrophy, photoautotrophy, 93
Hordeum vulgare, anthocyanin synthesis, gibberellin, barley isogenic lines, dwarf plant development, photoinsensitivity, 35
Host-parasite interface, fosetyl-Al, *Phytophthora infestans*, tomato leaf cell, ultrastructure, 267
Hydroxyproline-rich glycoproteins, cell wall, cell cycle, *Chlamydomonas reinhardii*, deglycosylation, carbohydrate cross-links, 119
Hypocotyl tissue, tissue culture, 2,4-diaminobutyric acid, *Lathyrus sylvestris*, flatpea, Lathco, 99

Inflorescence, sorghum culture, GA_3, phyllody, smut infection, 113
Inflorescences, globe artichoke, organogenesis, plant regeneration, asteraceae, tissue culture, 233
Isopentenyl adenine, *Pinus nigra*, chlorophyll accumulation, zeatin, zeatin riboside, isopentenyl adenosine, 153
Isopentenyl adenosine, *Pinus nigra*, chlorophyll accumulation, zeatin, zeatin riboside, isopentenyl adenine, 153
Isozymes, NADP⁺-malate dehydrogenase, purification, *Echinochloa crus-galli*, barnyard grass, populations, electrophoresis, 173

Kinetics, potato, enzyme, semialdehyde dehydrogenase, mechanism, 159

Lathco, tissue culture, 2,4-diaminobutyric acid, hypocotyl tissue, *Lathyrus sylvestris*, flatpea, 99
Lathyrus sylvestris, tissue culture, 2,4-diaminobutyric acid, hypocotyl tissue, flatpea, Lathco, 99
Lectin distribution, *Arachis hypogaea* (lectin), ELISA, 129
Lycopersicon peruvianum, bacterial canker, phytotoxin, extracellular polysaccharides, protoplasts, sucrose uptake, 105

Maltose, artificial seeds, desiccation tolerance, somatic embryogenesis, alfalfa, ammonium, 261
Marker enzymes, ATPase, pyrophosphatase, tonoplast, root, *Zea mays* L., 199
Mechanism, potato, enzyme, semialdehyde dehydrogenase, kinetics, 159
Melia azedarach, chlorophyllides, chlorophyll biosynthesis, chlorophyll catabolism, *Pisum sativum*, *Citrus sinensis*, 147
Membrane biogenesis, chloroplast translation, thylakoid-bound ribosomes, translation regulation, 137
Micrasterias, *dl*-7-azatryptophan, glutamine, glutamine synthetase inhibitors, nitrogen depletion, zygote formation, 21
Mitochondria, angiosperms, mitochondrial genome, 3
Mitochondrial genome, angiosperms, mitochondria, 3
Mycorrhiza, *Vigna radiata*, phosphorus, phosphatases, peroxidase, chlorophyll, 209

$NADP^+$-malate dehydrogenase, purification, *Echinochloa crus-galli*, barnyard grass, populations, isozymes, electrophoresis, 173
Nicotiana tabacum, cell suspensions, choline, chromosome numbers, osmolarity, 251
Nitrogen depletion, *dl*-7-azatryptophan, glutamine, glutamine synthetase inhibitors, *Micrasterias*, zygote formation, 21
Nitrogen fixation, photosynthesis, phosphorus use efficiency, plant water relations, *Rhizobium*-legume symbiosis, vesicular arbuscular mycorrhizae, 215
Non-nodulating soybean mutants, feedback regulation, shoot-root interaction, *Glycine max*, *Bradyrhizobium*, symbiosis, 69

Oil palm, *Elaeis guineensis*, somatic embryos, chilling injury, ethylene, ethylene-forming enzyme, 29
Organogenesis, globe artichoke, inflorescences, plant regeneration, asteraceae, tissue culture, 233
Osmolarity, cell suspensions, choline, chromosome numbers, *Nicotiana tabacum*, 251

Paraffinic hydrocarbon, cell suspension, *Euphorbia characias*, heterotrophy, photomixotrophy, photoautotrophy, 93
Peroxidase, *Vigna radiata*, mycorrhiza, phosphorus, phosphatases, chlorophyll, 209
Petunia hybrida, auxin, cytokinin, callus culture, protoplast, shoot and root regeneration, 239
Phosphatases, *Vigna radiata*, mycorrhiza, phosphorus, peroxidase, chlorophyll, 209
Phosphorus, *Vigna radiata*, mycorrhiza, phosphatases, peroxidase, chlorophyll, 209
Phosphorus use efficiency, nitrogen fixation, photosynthesis, plant water relations, *Rhizobium*-legume symbiosis, vesicular arbuscular mycorrhizae, 215
Photoautotrophy, paraffinic hydrocarbon, cell suspension, *Euphorbia characias*, heterotrophy, photomixotrophy, 93
Photoinsensitivity, anthocyanin synthesis, gibberellin, barley isogenic lines, dwarf plant development, *Hordeum vulgare*, 35
Photomixotrophy, paraffinic hydrocarbon, cell suspension, *Euphorbia characias*, heterotrophy, photoautotrophy, 93
Photosynthesis, nitrogen fixation, phosphorus use efficiency, plant water relations, *Rhizobium*-legume symbiosis, vesicular arbuscular mycorrhizae, 215
Phyllody, sorghum culture, inflorescence, GA_3, smut infection, 113
Phytophthora infestans, fosetyl-Al, host-parasite interface, tomato leaf cell, ultrastructure, 267
Phytotoxin, *Lycopersicon peruvianum*, bacterial canker, extracellular polysaccharides, protoplasts, sucrose uptake, 105
Pinus nigra, chlorophyll accumulation, zeatin, zeatin riboside, isopentenyl adenine, isopentenyl adenosine, 153
Pisum sativum, chlorophyllides, chlorophyll biosynthesis, chlorophyll catabolism, *Melia azedarach*, *Citrus sinensis*, 147
Plant-pathogen interactions, chitinase, wheat, 185
Plant regeneration, globe artichoke, organogenesis, inflorescences, asteraceae, tissue culture, 233
Plant water relations, nitrogen fixation, photosynthesis, phosphorus use efficiency, *Rhizobium*-legume symbiosis, vesicular arbuscular mycorrhizae, 215
Populations, $NADP^+$-malate dehydrogenase, purification, *Echinochloa crus-galli*, barnyard grass, isozymes, electrophoresis, 173
Potato, enzyme, semialdehyde dehydrogenase, kinetics, mechanism, 159
Protein kinase, calcium, fatty acids, sphingosine, 45
Protoplast, *Petunia hybrida*, auxin, cytokinin, callus culture, shoot and root regeneration, 239
Protoplasts, *Lycopersicon peruvianum*, bacterial canker, phytotoxin, extracellular polysaccharides, sucrose uptake, 105
Purification, $NADP^+$-malate dehydrogenase, *Echinochloa crus-galli*, barnyard grass, populations, isozymes, electrophoresis, 173
Pyrophosphatase, ATPase, marker enzymes, tonoplast, root, *Zea mays* L., 199

Red (far-red) light, abscission, soluble sugars, starch, *Vigna radiata*, 167
Regeneration efficiency, competence, shoot induction, callus determination, hedging effects, 83
Rhizobium-legume symbiosis, nitrogen fixation, photosynthesis, phosphorus use efficiency, plant water relations, vesicular arbuscular mycorrhizae, 215
Root, ATPase, pyrophosphatase, marker enzymes, tonoplast, *Zea mays* L., 199

Semialdehyde dehydrogenase, potato, enzyme, kinetics, mechanism, 159
Shoot-root interaction, feedback regulation, *Glycine max*, *Bradyrhizobium*, non-nodulating soybean mutants, symbiosis, 69
Shoot and root regeneration, *Petunia hybrida*, auxin, cytokinin, callus culture, protoplast, 239
Shoot induction, competence, callus determination, regeneration efficiency, hedging effects, 83
Sinapic acid, carrot suspension cultures, sinapoyl glucose synthesis, uridine diphosphoglucose, anthocyanins, 179

Sinapoyl glucose synthesis, carrot suspension cultures, sinapic acid, uridine diphosphoglucose, anthocyanins, 179
Smut infection, sorghum culture, inflorescence, GA_3, phyllody, 113
Soluble sugars, abscission, red (far-red) light, starch, *Vigna radiata*, 167
Somatic embryogenesis, artificial seeds, desiccation tolerance, alfalfa, maltose, ammonium, 261
Somatic embryos, oil palm, *Elaeis guineensis*, chilling injury, ethylene, ethylene-forming enzyme, 29
Sorghum culture, inflorescence, GA_3, phyllody, smut infection, 113
Sphingosine, calcium, protein kinase, fatty acids, 45
Starch, abscission, red (far-red) light, soluble sugars, Vigna radiata, 167
Sucrose uptake, *Lycopersicon peruvianum*, bacterial canker, phytotoxin, extracellular polysaccharides, protoplasts, 105
Symbiosis, feedback regulation, shoot-root interaction, *Glycine max*, *Bradyrhizobium*, non-nodulating soybean mutants, 69

Thylakoid-bound ribosomes, chloroplast translation, translation regulation, membrane biogenesis, 137
Tissue culture, 2,4-diaminobutyric acid, hypocotyl tissue, *Lathyrus sylvestris*, flatpea, Lathco, 99
Tissue culture, globe artichoke, organogenesis, inflorescences, plant regeneration, asteraceae, 233
Tomato leaf cell, fosetyl-Al, host-parasite interface, *Phytophthora infestans*, ultrastructure, 267
Tonoplast, ATPase, pyrophosphatase, marker enzymes, root, *Zea mays* L., 199
Translation regulation, chloroplast translation, thylakoid-bound ribosomes, membrane biogenesis, 137

Ultrastructure, fosetyl-Al, host-parasite interface, *Phytophthora infestans*, tomato leaf cell, 267
Uridine diphosphoglucose, carrot suspension cultures, sinapoyl glucose synthesis, sinapic acid, anthocyanins, 179

Vesicular arbuscular mycorrhizae, nitrogen fixation, photosynthesis, phosphorus use efficiency, plant water relations, *Rhizobium*-legume symbiosis, 215
Vigna radiata, abscission, red (far-red) light, soluble sugars, starch, 167
Vigna radiata, mycorrhiza, phosphorus, phosphatases, peroxidase, chlorophyll, 209

Wheat, chitinase, plant-pathogen interactions, 185

Zeatin, *Pinus nigra*, chlorophyll accumulation, zeatin riboside, isopentenyl adenine, isopentenyl adenosine, 153
Zeatin riboside, *Pinus nigra*, chlorophyll accumulation, zeatin, isopentenyl adenine, isopentenyl adenosine, 153
Zea mays L., ATPase, pyrophosphatase, marker enzymes, tonoplast, root, 199
Zygote formation, *dl*-7-azatryptophan, glutamine, glutamine synthetase inhibitors, *Micrasterias*, nitrogen depletion, 21

Plant Science, 71 (1990) 285
Elsevier Scientific Publishers Ireland Ltd.

Author Index

Volume 71 (1990)

Aguirreolea, J. 215
Anandarajah, K. 261
Ancora, G. 233
Antolín, M. 215
Atwal, A. 209

Barber, M.S. 185
Bhaskaran, S. 113
Bogdanović, M. 153
Breiman, A. 3
Brillat, M. 239

Caetano-Anollés, G. 69
Carriere, F. 93
Chagvardieff, P. 93
Chanson, A. 199
Chervin, D. 251
Coleman, G.D. 83
Côme, D. 29
Corbineau, F. 29
Coulombe, B.A. 99
Craker, L.E. 167
Croy, R.R.D. 223

Doida, Y. 21
Dons, J.J.M. 105
Dougall, D.K. 179

Engelmann, F. 29
Ernst, S.G. 83
Evans, I.M. 223

Favret, E.A. 35
Foster, J.G. 99
Frederiksen, R.A. 113

Galun, E. 3
Gatehouse, J.A. 223
Gatehouse, L.N. 223
Gawer, M. 251
Gil, G. 93
Goldschmidt, E.E. 147
Gresshoff, P.M. 69
Guern, N. 251

Halaweish, F.T. 179

Imaizumi, M. 21

Jacobsen, S. 55
Jagendorf, A.T. 137
Jelić, G. 153
Jiang, Y. 267

Keane, P.J. 45
Klucis, E. 45
König, W.A. 119
Kragh, K.M. 55
Kriel, M.M. 129

Law, I.J. 129
Löffler, H.J.M. 105

Mao, Z. 167
Martínez, A.E. 35
Mazliak, P. 251
McKersie, B.D. 261
Michaels, A. 137
Mikkelsen, J.D. 55
Minichiello, J. 45

Nair, P.M. 159
Narayan, V.S. 159
Nott, R. 45

Ordas, R.J. 233

Pardo, M. 215
Pean, M. 93
Peña, J. 215
Polya, G.M. 45

Renaudin, J.-P. 239
Ride, J.P. 185
Rise, M. 147

Sánchez-Díaz, M. 215
Sekhon, B.S. 209
Sigoillot, J.C. 93
Simon, J.-P. 173
Singh, R. 209
Smith, R.H. 113
Strijdom, B.W. 129

Tapie, P. 93
Tavazza, R. 233
Teyssendier de la Serve, B. 239
Thapar, S. 209
Tournaire, C. 239

Vairinhos, F. 173
van den Bulk, R.W. 105
van Scoyoc, S.W. 99
Veilleux, R.E. 99
Vogeler, H.-P. 119
Voigt, J. 119